



Pursuant to the authority vested in California Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-19-095;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

| MODEL YEAR | | | FUEL TYPE ¹ | & TEST PROCEDURE | SERVICE CLASS ² | ECS & SPECIAL FEATURES ³ | DIAGNOSTIC ⁶ | | |
|---------------|----------------------------------|-------------------------------------|------------------------|---------------------|-------------------------------|---|-------------------------|--|--|
| 2021 | MDDXH12.8FED | 12.8 | Diesel | Diesel | HHDD | DDI, TC, CAC, ECM, EGR, OC, PTOX, SCR-U, AMOX | OBD (P) | | |
| | Y ENGINE'S IDLE ONS CONTROL 5 | ADDITIONAL IDLE EMISSIONS CONTROL 5 | | | | | | | |
| | 30a | N/Δ | | | | | | | |

STANDARDS INTENDED

ENGINE (L) ENGINE MODELS / CODES (rated power, in hp)

12.8 See attachments engine models and ratings

*=not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; hp=horsepower; kw=kilowatt; hr=hour;

1 CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;

L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;

3 ECS-emission control system; TWC/OC=three-way/oxidizing catalyst; NAC=NOx adsorption catalyst; SCR-U / SCR-N=selective catalytic reduction – urea / – ammonia; WU (prefix)=warm-up catalyst; DPF=diesel particulate filter; PTOX=periodic trap oxidizer; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFIMFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR / EGR-C=exhaust gas recirculation / cooled EGR; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series;

5 ESS=engine shutdown system (per 13 CCR 1956.8(a)(6)(A)(1); 30g=30 g/hr NOx (per 13 CCR 1956.8(a)(6)(C); APS =internal combustion auxiliary power system; ALT=alternative method (per 13 CCR 1956.8(a)(6)(D); Exempt=exempted per 13 CCR 1956.8(a)(6)(B) or for CNG/LNG fuel systems; N/A=not applicable (e.g., Otto engines and vehicles);

EMD=engine manufacturer diagnostic system (13 CCR 1971); OBD(F) / (P) / (\$)=full / partial / partial with a fine / on-board diagnostic;);

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.8; 2) the SET and NTE limits under the applicable California exhaust emission standards and test procedures for heavyduty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, for this engine family. "Diesel" CO, SET and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.8 are in parentheses.).

| NMHC | | NOx | | NMHC+NOx | | со | | PM | | нсно | |
|------|--------------|---|--|--|--|--|---|---|--|--|---|
| FTP | SET | FTP | SET | FTP | SET | FTP | SET | FTP | SET | FTP | SET |
| 0.14 | 0.14 | 0.20 | 0.20 | * | * | 15.5 | 15.5 | 0.01 | 0.01 | * | * |
| 0.01 | 0.003 | 0.14 | 0.03 | * | * | 0.3 | 0.02 | 0.000 | 0.003 | * | * |
| 0.2 | 21 | 0. | 30 | 7 | k | 19 |).4 | 0. | 02 | k | ŕ |
| | 9.14 0.01 | FTP SET 0.14 0.14 | FTP SET FTP 0.14 0.14 0.20 0.01 0.003 0.14 | FTP SET FTP SET 0.14 0.14 0.20 0.20 0.01 0.003 0.14 0.03 | FTP SET FTP SET FTP 0.14 0.14 0.20 0.20 * 0.01 0.003 0.14 0.03 * | FTP SET FTP SET FTP SET 0.14 0.14 0.20 0.20 * * 0.01 0.003 0.14 0.03 * * | FTP SET FTP SET FTP SET FTP 0.14 0.14 0.20 0.20 * * 15.5 0.01 0.003 0.14 0.03 * * 0.3 | FTP SET FTP SET FTP SET FTP SET 0.14 0.14 0.20 0.20 * * 15.5 15.5 0.01 0.003 0.14 0.03 * * 0.3 0.02 | FTP SET FTP SET FTP SET FTP 0.14 0.14 0.20 0.20 * * 15.5 15.5 0.01 0.01 0.003 0.14 0.03 * * 0.3 0.02 0.000 | FTP SET FTP <th>FTP SET FTP SET SET FTP SET FTP SET</th> | FTP SET SET FTP SET FTP SET |

g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; SET=Supplemental emissions testing; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: The manufacturer has demonstrated compliance with the Greenhouse Gas Emission Standards as specified in Title 13 CCR 1956.8 and the incorporated "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy Duty Diesel-Engines and Vehicles" (HDDE Test Procedures) adopted December 12, 2002, as last amended April 18, 2019.

| | PRIMARY INTENDED SERVICE CLA | SS: Tractor and Vocational | | |
|----------------|------------------------------|----------------------------|------|------|
| In g/bhp-hr | | CO ₂ | CII | N.O. |
| | FTP | SET | CH₄ | N₂O |
| STD | 513 | 447 | 0.10 | 0.10 |
| FCL | 519 | 449 | * | * |
| FEL | 535 | 462 | 0.10 | 0.10 |
| CERT | 522 | 445 | 0.02 | 0.04 |

dybhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; SET=Supplemental emissions testing; STD = standard or emission test cap; FEL=family emission limit; FCL=family certification level; CERT=certification level; CO₂=carbon dioxide; CH₄=methane; N₂O=nitrous oxide; VOCATIONAL=vocational engine; TRACTOR=tractor engine

BE IT FURTHER RESOLVED: Certification to the FEL(s) / FCL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) / FCL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.



DETROIT DIESEL CORPORATION

EXECUTIVE ORDER A-290-0176 New On-Road Heavy-Duty Engines

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1971.1 (on-board diagnostic, full or partial compliance) and 13 CCR 2035 et seq. (emission control warranty).

BE IT FURTHER RESOLVED: Except in vehicle applications exempted per 13 CCR 1956.8(a)(6)(B), engines in this engine family certified under 13 CCR 1956.8(a)(6)(C) [30 g/hr NOx] and section 35.B.4 of the incorporated "California Exhaust Emissions Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" (HDDE Test Procedures) adopted December 12, 2002, as last amended April 18, 2019, shall be provided with an approved "Certified Clean Idle" label that shall be affixed to the vehicle into which the engine is installed.

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed on this 12th day of December 2020.

Allen Lyons, Chief

Emissions Certification and Compliance Division

Displacement -Peak Power -**Peak Power** Peak Torque -Peak Torque -Peak Torque -Peak Power -Peak Power -Peak Torque -**Peak Power** Speed (rpm) Model Code Trim Config Displacement Units Units Speed (rpm) **Fueling Fuel Units Peak Torque** Units Fuel **Fuel Units** OBD GHG Special Notes DD13 12.8 Liters 380 1625 117.8 lb/hr 1450 lb-ft 1075 90.5 lb/hr Partial N/A L6 horsepower DD13 127.2 lb/hr L6 12.8 410 1625 1450 lb-ft 1075 90.5 lb/hr Partial N/A horsepower DD13 12.8 Liters 450 1625 140.1 lb/hr 1650 lb-ft 1075 103.4 lb/hr Partial N/A II L6 horsepower DD13 Ш 108.5 lb/hr N/A L6 12.8 Liters 350 horsepower 1625 1350 lb-ft 1075 84.3 lb/hr Partial IV 12.8 370 114.7 lb/hr 1250 78.0 DD13 L6 Liters horsepower 1625 lb-ft 1075 lb/hr Partial N/A DD13 VI L6 12.8 400 1625 124.1 lb/hr 1750 lb-ft 1075 110.0 N/A Liters horsepower lb/hr Partial 12.8 140.1 DD13 VII L6 Liters 450 horsepower 1625 lb/hr 1550 lb-ft 1075 96.8 lb/hr Partial N/A DD13 L6 12.8 410 horsepower 1625 127.2 lb/hr 1550 lb-ft 1075 96.8 lb/hr Partial N/A DD13 VIII L6 12.8 Liters 410 horsepower 1625 127.2 lb/hr 1650 lb-ft 1075 103.4 lb/hr Partial N/A DD13 L6 12.8 410 127.2 lb/hr 1450 lb-ft 1075 90.5 N/A Liters horsepower 1625 lb/hr Partial 435 DD13 L6 12.8 Liters 1625 135.2 lb/hr 1550 lb-ft 1075 96.8 lb/hr Partial N/A IX horsepower DD13 ΧI L6 12.8 470 1625 146.9 lb/hr 1650 lb-ft 1075 103.4 lb/hr N/A Liters Partial horsepower DD13 XII L6 12.8 Liters 505 1625 159.8 lb/hr 1850 lb-ft 1075 117.0 lb/hr Partial N/A horsepower 12.8 127.2 1450 DD13 XIII L6 Liters 410 1625 lb/hr lb-ft 1075 90.5 lb/hr Partial N/A horsepower 140.1 DD13 XIV 12.8 450 1625 lb/hr 1550 lb-ft 1075 96.8 lb/hr Partial N/A L6 Liters horsepower DD13 XVIII L6 12.8 Liters 410 horsepower 1625 127.2 lb/hr 1450 lb-ft 1075 90.5 lb/hr Partial N/A DD13 L6 12.8 380 horsepower 1625 117.8 lb/hr 1450 lb-ft 1075 90.5 lb/hr Partial N/A DD13 XIX L6 12.8 Liters 450 horsepower 1625 140.1 lb/hr 1550 lb-ft 1075 96.8 lb/hr Partial N/A DD13 XX 12.8 450 1625 140.1 lb/hr 1650 lb-ft 1075 103.4 lb/hr Partial N/A L6 Liters horsepower 12.8 470 lb/hr N/A DD13 XXIII L6 Liters horsepower 1625 146.9 1650 lb-ft 1075 103.4 lb/hr Partial

lb/hr

lb/hr

lb/hr

1650

1850

1750

lb-ft

lb-ft

lb-ft

1075

1075

1075

103.4

117.0

110.0

146.9

168.0

159.8

1625

1625

1625

Partial

Partial

Partial

N/A

N/A

N/A

lb/hr

lb/hr

lb/hr

Attachment Revised: 11/30/2020

Family: MDDXH12.8FED

470

525

505

horsepower

horsepower

horsepower

Liters

Liters

Liters

EO #: A-290-0176

12.8

12.8

12.8

L6

L6

L6

Attachment: Engine Models

DD13-FT XXI

DD13-FT XXII

DD13-FT XVI